

**TIME DIVISION MULTIPLEXED, PILOTED CURRENT MONITORING
IN A SWITCHED MODE DC-DC VOLTAGE CONVERTER AND PHASE
CURRENT MEASUREMENT CALIBRATION FOR A MULTIPHASE
CONVERTER**

ABSTRACT

An arrangement for measuring current through a phase section of a buck mode DC-DC converter includes an auxiliary integrated circuit containing an auxiliary power MOSFET and a pilot MOSFET coupled in parallel with a current path through a high side MOSFET of a half-bridge of the converter. The pilot MOSFET has a current path coupled to a current measurement terminal. The MOSFETs of the auxiliary circuit are time division multiplexed with the high side MOSFET, whereby a determination of current through the auxiliary high side MOSFET is based upon current through the pilot device and the geometric ratio of the size of the pilot device to that of the high side auxiliary MOSFET. The high side MOSFET is activated for a large number of switching cycles relative to the pilot circuitry, but the pilot circuitry is activated sufficiently often to derive a relatively accurate measure of current flow.